

IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Withdrawn): A laser processing apparatus for processing a member to be processed by irradiating the member with laser light, the apparatus comprising:

a laser for generating laser light;

optical means for converging the laser light generated by the laser onto a processing area;

and

a filter, disposed between the member to be processed and the optical means, for blocking a wavelength of fluorescence generated by the optical means upon pumping with the laser light;

wherein light having the wavelength blocked by the filter is used for measuring a temperature of the processing area.

Claim 2 (Withdrawn): A laser processing apparatus for processing a member to be processed by irradiating the member with laser light, the apparatus comprising:

a laser for generating laser light;

first optical means for converging the laser light generated by the laser onto a processing area; and

second optical means, disposed between the member to be processed and the first optical means, for blocking a wavelength of fluorescence generated by the optical means upon pumping with the laser light;

wherein light having the wavelength blocked by the second optical means is used for measuring a temperature of the processing area.

Claim 3 (Withdrawn): A laser processing apparatus according to claim 1, wherein the filter or second optical means blocks a wavelength other than an oscillation wavelength of the laser light.

Claim 4 (Withdrawn): A laser processing temperature measuring apparatus for measuring the temperature of the processing area being processed by the laser processing apparatus according to claim 1,

the measuring apparatus comprising temperature detecting means for detecting the temperature according to a light component having the wavelength blocked by the filter or second optical means in light thermally radiating from the processing area.

Claim 5 (Withdrawn). A laser processing method for processing a member to be processed by irradiating the member with laser light; the method comprising:

a laser light generating step of generating laser light;

a light-converging step of causing an optical system to converge the laser light generated by the laser light generating step onto a processing area; and

a fluorescence blocking step of causing a filter to block a wavelength of fluorescence generated by the optical system upon pumping with the laser light before processing;

wherein light having the wavelength blocked by the fluorescence blocking step is used for measuring a temperature of the processing area.

Claim 6 (Withdrawn). A laser processing method for processing a member to be processed by irradiating the member with laser light; the method comprising:

a laser light generating step of generating laser light;

a light-converging step of causing a first optical system to converge the laser light generated by the laser light generating step onto a processing area; and

a fluorescence blocking step of causing a second optical system to block a wavelength of fluorescence generated by the first optical system upon pumping with the laser light before processing;

wherein light having the wavelength blocked by the fluorescence blocking step is used for measuring a temperature of the processing area.

Claim 7 (Withdrawn): A laser processing temperature measuring method for measuring the temperature of the processing area being processed by the laser processing method according to claim 5, the measuring method comprising:

a temperature detecting step of detecting the temperature according to a light component having the wavelength blocked by the fluorescence blocking step in light thermally radiating from the processing area.

Claim 8 (Currently Amended): A laser processing apparatus for welding stacked resin members to each other by using laser light, the apparatus comprising:

a semiconductor laser for generating laser light; and

a filter, disposed between the semiconductor laser and the resin members, for blocking light having a wavelength to become an observation wavelength for measuring a temperature of a welding area in the light generated by the semiconductor laser;

one of the stacked resin members, on the incident side of the laser light generated by the semiconductor laser, having a property of transmitting the laser light that is generated by the semiconductor laser and the thermally radiating light that is generated by the welding area;

the filter blocks the light that is generated by the semiconductor laser and has a wavelength other than an oscillation wavelength of the semiconductor laser, and the light with a wavelength falling within the range of 1500nm to 2800nm which can be transmitted through the resin member on the incident side of the laser light;

wherein the light that is generated by the semiconductor laser and has a wavelength that cannot be blocked by the filter is used for welding the resin members to each other, and the thermally radiating light that is generated by the welding area and has a light having the wavelength blocked by the filter is used for measuring the temperature of the welding area.

Claim 9 (Currently Amended). A laser processing apparatus for welding stacked resin members to each other by using laser light, the apparatus comprising:

a semiconductor laser for generating laser light; and

optical means for converging the laser light generated by the semiconductor laser onto a welding area and blocking light having a wavelength to become an observation wavelength for measuring a temperature of the welding area in the light generated by the semiconductor laser;

one of the stacked resin members, on the incident side of the laser light generated by the semiconductor laser, having a property of transmitting the laser light that is generated by the semiconductor laser and the thermally radiating light that is generated by the welding area;

optical means blocks the light that is generated by the semiconductor laser and has a wavelength other than an oscillation wavelength of the semiconductor laser, and the light with a wavelength falling within the range of 1500nm to 2800nm which can be transmitted through the resin member on the incident side of the laser light;

wherein the light that is generated by the semiconductor laser and has a wavelength that cannot be blocked by optical means is used for welding the resin members to each other, and the thermally radiating light that is generated by the welding area and has a light having the wavelength blocked by the optical means is used for measuring the temperature of the welding area.

Claims 10-12 (Canceled).

Claim 13 (Currently Amended): A laser processing method for welding stacked resin members to each other by using laser light, the method comprising:

a laser light generating step of causing a semiconductor laser to generate laser light; and

a filtering step of blocking light having a wavelength to become an observation wavelength for measuring a temperature of a welding area in the light generated by the laser light generating step with a filter before welding;

one of the stacked resin members, on the incident side of the laser light generated by the laser light generating step, having a property of transmitting the laser light that is generated by the laser light generating step and the thermally radiating light that is generated by the welding area;

the filtering step blocks the light that is generated by the laser light generating step and has a wavelength other than an oscillation wavelength of the semiconductor laser, and the light with a wavelength falling within the range of 1500nm to 2800nm which can be transmitted through the resin member on the incident side of the laser light;

wherein the light that is generated by the laser light generating step and has a wavelength that cannot be blocked by the filtering step is used for welding the resin members to each other, and the thermally radiating light that is generated by the welding area and has a light having the wavelength blocked by the filtering step is used for measuring the temperature of the welding area.

Claim 14 (Currently Amended): A laser processing method for welding stacked resin members to each other by using laser light, the method comprising:

a laser light generating step of causing a semiconductor laser to generate laser light; and

a filtering step of blocking light having a wavelength to become an observation wavelength for measuring a temperature of a welding area in the light generated by the laser light generating step with an optical system adapted to converge the laser light generated by the laser light generating step onto the welding area;

one of the stacked resin members, on the incident side of the laser light generated by the laser light generating step, having a property of transmitting the laser light that is generated by the laser light generating step and the thermally radiating light that is generated by the welding area;

the filtering step blocks the light that is generated by the laser light generating step and has a wavelength other than an oscillation wavelength of the semiconductor laser, and the light with a wavelength falling within the range of 1500nm to 2800nm which can be transmitted through the resin member on the incident side of the laser light;

wherein the light that is generated by the laser light generating step and has a wavelength that cannot be blocked by the filtering step is used for welding the resin members to each other, and the thermally radiating light that is generated by the welding area and has a light having the wavelength blocked by the filtering step is used for measuring the temperature of the welding area.

Claim 15 (Canceled).